



## DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS

### DIRECTOR'S OFFICE

### CONSTRUCTION SAFETY STANDARDS

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as amended January 11, 1988) (as amended September 3, 1996) (as amended July 12, 1999)  
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(By authority conferred on the director of the department of licensing and regulatory affairs  
by sections 19 and 21 of 1974 PA 154, and Executive Reorganization Order Nos. 1996-2, 2003-1, 2008-4,  
and 2011-4, MCL 445.2001, 445.2011, 445.2025, and 445.2030)

R 408.40617, R 408.40621, R 408.40622, R 408.40623, R 408.40624, R 408.40625, R 408.40626,  
R 408.40631, R 408.40634, and R 408.40635 of the Michigan Administrative Code are amended  
and R 408.40627, R 408.40632, and R 408.40641 of the Code are rescinded, as follows:

### PART 6. PERSONAL PROTECTIVE EQUIPMENT

#### TABLE OF CONTENTS

R 408.40601. Scope. ....	1	R 408.40625. Certification and use of foot Protection....	5
R 408.40615. Definitions; H to O. ....	1	R 408.40626. Body protection.....	6
R 408.40616. Definitions; S. ....	1	R 408.40631. Protection from unguarded surfaces. ....	6
R 408.40617. Employer responsibility. ....	2	R 408.40633. Lineman's belt and safety strap; use. ....	6
R 408.40621. Certification of head protection. ....	2	R 408.40634. Lineman's belt and safety strap; construction.....	6
R 408.40622. Use of head protection. ....	2	R 408.40635. Safety nets. ....	7
R 408.40623. Certification of face and eye Protection ...	2	R 408.40636. Working over or near water. ....	7
R 408.40624. Use of face and eye protection. ....	2		

### GENERAL PROVISIONS

#### **R 408.40601. Scope.**

**Rule 601.** This part provides specifications for personal protective equipment and prescribes the use of this equipment for the protection of the employee's head, face, eyes, hands, feet, and body during construction operations.

#### **R 408.40615. Definitions; H to O.**

**Rule 615.** (1) "Helmet," sometimes called a hard hat or cap, means a rigid device that is worn to provide protection for the head.

(2) "Hood" means a device which is worn to provide protection against acids, chemicals, abrasives, and temperature extremes and which entirely encloses the whole head, including the face and neck.

(3) "Lanyard" means a device which is suitable for supporting 1 person and which has 1 end fastened to a safety belt or harness and the other end secured to a substantial object or a lifeline.

(4) "Lifeline," sometimes called a static line or a catenary line, means a rope to which a lanyard or safety belt or harness is attached.

(5) "Lineman's belt," sometimes called a body belt, means a device that has loops and holsters for holding tools and D rings to which a safety strap is attached.

(6) "O.D." means optical density and refers to the light refractive characteristics of a lens.

#### **R 408.40616. Definitions; S.**

**Rule 616.** (1) "Safety belt" means a device which is worn around the waist and which, by reason of its attachment to a device, restricts the fall of an employee.

(2) "Safety harness" means a device which is worn over the shoulders and around the chest and which, by reason of its attachment to a device, restricts the fall of an employee.

(3) "Safety line" means a device used for emergency rescue work.

(4) "Safety strap," sometimes called a safety rope, means an adjustable device used to hold an employee to a fixed object, such as a pole, ladder, or tower. A safety strap is fastened by snap hooks to the D rings of a lineman's body belt.

(5) "Sanitizing" means an act or process of destroying organisms that may cause disease.

#### **R 408.40617. Employer responsibility.**

**Rule 617.** (1) An employer shall provide to an employee, at no expense to the employee, the initial issue of personal protective equipment and replacement equipment necessary due to reasonable wear and tear required by this part or any other construction safety standard rules, unless specifically indicated otherwise in this part or any other construction safety standard rules, or unless a collective bargaining or other employer/employee agreement specifically requires employees to provide such equipment.

(2) An employer shall require an employee to wear personal protective equipment when prescribed by the rules of this part.

(3) If the employer supplies personal protective equipment which is worn in direct contact with the skin, the equipment shall be sanitized before being reissued to another employee.

#### **R 408.40621. Certification of head protection.**

**Rule 621.** (1) A class A helmet shall bear a certification by the manufacturer that the helmet is as prescribed in ANSI standard Z89.1-1986, industrial head protection, which is adopted in these rules by reference and may be inspected at the Lansing office of the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section. The standard may be purchased at a cost of \$24.00 as of the time of adoption of these rules from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan 48909.

(2) A class B helmet for the protection of an employee exposed to voltages of more than 600 volts shall bear a certification by the manufacturer that the helmet is as prescribed in ANSI standard Z89.2-1986, industrial protective helmets for electrical workers, which is adopted in these rules by reference and may be inspected at the Lansing office of the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section. The standard may be purchased at a cost of \$24.00 as of time of adoption of these rules from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Licensing and Regulatory

Affairs, MIOSHA Standards Section, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.

#### **R 408.40622. Use of head protection.**

**Rule 622.** (1) A helmet, as prescribed in R 408.40621, shall be used to protect the employee where a hazard or risk of injury exists from falling or flying objects or particles or from other harmful contacts or exposures.

(2) A helmet that has been physically altered, painted, or damaged shall not be worn.

(3) A chin strap shall be provided with a helmet and shall be used when the employee is exposed to weather or work operations that may cause the helmet to be displaced.

#### **R 408.40623. Certification of face and eye Protection**

**Rule 623.** Except for the devices required by R 408.40624(5), all face and eye protection devices shall bear a certification by the manufacturer that the device has been produced according to ANSI standard Z87.1, as revised in 1991, occupational and educational eye and face protection, which is adopted in these rules by reference and may be inspected at the Lansing office of the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section. The standard may be purchased at a cost of \$42.00 as of the time of adoption of these rules from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, P.O. Box 30643, Lansing, Michigan 48909. If it is impractical for the protection device to bear the certification, then the container for the device shall bear the certification.

#### **R 408.40624. Use of face and eye protection.**

**Rule 624.** (1) Face and eye protection, as prescribed in R 408.40623, shall be used where a hazard or risk of injury exists from flying objects or particles, harmful contacts, exposures such as glare, liquids, injurious radiation, electrical flash, or a combination of these hazards. Table 1 shall be used as a guide to select the proper eye and face protection.

(2) An employee who needs corrective lenses in spectacles where eye protection is required shall be protected by 1 of the following:

(a) Spectacles whose protective lenses provide optical correction.

(b) Goggles that can be worn over the corrective lenses without disturbing the adjustment of the spectacles.

(c) Goggles that incorporate corrective lenses mounted behind the protective lenses.

(3) Face and eye protection equipment shall be of proper size to fit the employee and protect against the intrusion of foreign objects. Face and eye protection shall be kept clean and in good repair. Equipment with structural or optical defects shall not be used.

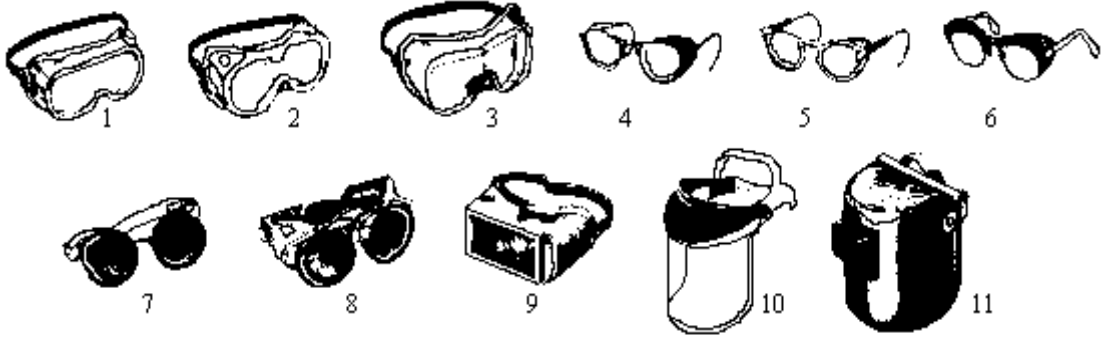
(4) When an employee is welding and using a welding shield, the shield shall incorporate a safety glass feature with a flip-up filter lens or the employee shall wear safety glasses with side shields or goggles under the shield when the shield is raised and is exposed to flying objects.

(5) Table 2 shall be used to select the proper shade number of filter lenses or plates during welding operations.

(6) An employee exposed to laser beams with a wattage of more than .005 (5 milliwatts) shall wear laser safety goggles which provide protection for the specific wavelength of the laser and which are of an optical density (O.D.) adequate for the energy involved. The maximum power or energy density for which adequate protection is afforded by glasses of optical densities from 5 to 8 is shown in table 3. Output levels falling between lines in this table shall require the higher optical density.

(7) Table 1 reads as follows:

**TABLE 1**

<b>EYE AND FACE PROTECTOR SELECTION GUIDE</b>		
		
1.	GOGGLES	Flexible Fitting, Regular Ventilation
2.	GOGGLES	Flexible Fitting, Hooded Ventilation
3.	GOGGLES	Cushioned Fitting, Rigid Body
* 4.	SPECTACLES	Metal Frame, with Side Shields
* 5.	SPECTACLES	Plastic Frame, with Side Shields
* 6.	SPECTACLES	Metal-Plastic Frame, with Side Shields
** 7.	WELDING GOGGLES	Eyecup Type, Tinted Lenses (Illustrated)
7A.	CHIPPING GOGGLES	Eyecup Type, Clear Safety Lenses (Not Illustrated)
**8.	WELDING GOGGLES	Coverspec Type, Tinted Lenses (Illustrated)
**8A.	CHIPPING GOGGLES	Coverspec Type, Clear Safety Lenses. (Not Illustrated)
**9.	WELDING GOGGLES	Coverspec Type, Tinted Plate Lens
10.	FACE SHIELD	(Available with Plastic or Mesh Window)
**11.	WELDING HELMETS	

## APPLICATIONS

OPERATION	HAZARDS	RECOMMENDED PROTECTORS:  <b>Bold Type Numbers Signify Preferred Protection</b>
Acetylene-Burning Acetylene-Cutting Acetylene-Welding	Sparks, Harmful rays, Molten Metal, Flying Particles	<b>7, 8, 9</b>
Chemical Handling	Splash, Acid burns, Fumes	<b>2, 10</b> (For severe exposure add 10 over 2)
Chipping	Flying Particles	<b>1, 3, 4, 5, 6, 7A, 8A</b>
Electric(arc) Welding	Sparks, Intense Rays, Molten Metal	<b>9, 11</b> (11 in combination with 4, 5, 6, in tinted lenses advisable)
Furnace Operations	Glare, Heat, Molten Metal	<b>7, 8, 9</b> (For severe exposure add 10)
Grinding-Light	Flying Particles	<b>1, 3, 4, 5, 8, 10</b>
Grinding-Heavy	Flying Particles	<b>1, 3, 7A, 8A</b> (For severe exposure add 10)
Laboratory	Chemical Splash, Glass Breakage	<b>2</b> (10 when in combination with 4, 5, 6)
Machining	Flying Particles	<b>1, 3, 4, 5, 8, 10</b>
Molten Metals	Heat, Glare, Sparks, Splash	<b>7, 8</b> (10 in combination with 4, 5, 6, in tinted lenses)
Spot Welding	Flying Particles, Sparks	<b>1, 3, 4, 5, 8, 10</b>

\* Non-side shield spectacles are available for limited hazard use requiring only frontal protection.

\*\* See table 2 of this rule, "Filter Lens Shade Numbers Welding Operations."

(10) Table 2 reads as follows:

**TABLE 2**

<b>FILTER LENS SHADE NUMBERS DURING WELDING OPERATIONS</b>	
<b>WELDING OPERATION</b>	<b>SHADE NUMBER</b>
Shielded metal-arc welding 1/16-, 3/32-, 1/8-, 5/32-, inch diameter electrodes	10
Gas-shielded arc welding (nonferrous) 1/16-, 3/32-, 1/8-, 5/32-inch diameter electrodes	11
Gas-shielded arc welding (ferrous) 1/16, 3/32-, 1/8-, 5/32-inch diameter electrodes	12
Shielded metal-arc welding 3/16-, 7/32-, 1/4-inch diameter electrodes	12
5/16-, 3/8-inch diameter electrodes	14
Atomic hydrogen welding	10 - 14
Carbon-arc welding	14

TABLE 2 (continued)

FILTER LENS SHADE NUMBERS DURING WELDING OPERATIONS	
WELDING OPERATION	SHADE NUMBER
Soldering	2
Torch brazing	3 or 4
Light cutting, up to 1 inch	3 or 4
Medium cutting, 1 inch to 6 inches	4 or 5
Heavy cutting, over 6 inches	5 or 6
Gas welding (light), up to 1/8-inch	4 or 5
Gas welding (medium), 1/8-inch to 1/2-inch	5 or 6
Gas welding (heavy), over 1/2-inch	6 or 8

(11) Table 3 reads as follows:

TABLE 3

SELECTING LASER SAFETY GLASS		
INTENSITY		ATTENUATION
CW Maximum Power Density (Watts/cm <sup>3</sup> )	Optical Density (O.D.)	Attenuation Factor
10 <sup>-2</sup>	5	10 <sup>5</sup>
10 <sup>-2</sup>	6	10 <sup>6</sup>
1.0	7	10 <sup>7</sup>
10.0	8	10 <sup>8</sup>

\*10<sup>-2</sup> Equals 1 Milliwatt.

#### **R 408.40625. Certification and use of foot Protection.**

**Rule 625.** (1) Safety toe footwear shall bear a permanent mark to show the manufacturer's name or trademark and to show certification of compliance with ANSI standard Z41-1991, protective foot wear personal protection, which is adopted in these rules by reference and may be inspected at the Lansing office of the Department of Licensing and Regulatory Affairs, MIOSHA Standards Section. The standard may be purchased at a cost of \$20.00 as of the time of adoption of these rules from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Licensing and Regulatory Affairs, MIOSHA Standards Section, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.

(2) An employee shall wear foot protection or toe protection, or both, if conditions of the job are likely to cause a foot injury. The employee shall provide the foot protection or toe protection unless specifically otherwise provided for in a collective bargaining agreement or other employer-employee agreement.

(3) Where a hazard is created from a process, a chemical or mechanical irritant which could cause an injury or impairment to the feet by absorption or from physical contact other than from impact, footwear such as boots, overshoes, rubbers, wooden-soled shoes, or their equivalent shall be worn by the employee and provided for by the employer.

**R 408.40626. Body protection.**

**Rule 626.** (1) An employee who handles rough, sharp-edged, abrasive materials, or whose work subjects the hands to lacerations, punctures, burns, or bruises, shall wear hand protection of a type suitable for the work being performed. The employee shall provide the hand protection unless specifically otherwise provided for in a collective bargaining agreement or other employer-employee agreement.

(2) Cloth gloves shall not be worn when operating rotating equipment such as a drill or a powered threading machine.

(3) Precautions shall be taken with regard to synthetic clothing that is worn near a source of flame, spark, a hot surface, or material that could ignite the clothing.

(4) An employee shall not wear loose clothing, neckwear encircling the neck, or exposed jewelry, such as rings and necklaces, near a machine having reciprocating or rotating shafts or spindles or when handling material that could catch on clothing or jewelry and cause injury. A ring shall not be worn on the finger unless covered by a glove or tape.

(5) When an employee is exposed to hazards such as radiation, alkalis, acids, abrasives, and temperature extremes other than those caused by weather conditions, appropriate head, body, and hand protection shall be worn to protect the employee from that hazard. Such personal protective equipment shall be provided by the employer.

**R 408.40627. Rescinded.**

**R 408.40631. Protection from unguarded surfaces.**

**Rule 631.** (1) An employer shall ensure that an employee whose protection from falling is not covered by another part of the construction safety standards and who works more than 10 feet above the ground or floor from an unguarded work surface or who, regardless of height, works from an unguarded work surface above or adjacent to, or above and adjacent to, a specific hazard, such as, but not limited to, dangerous equipment or an open tank or vat of hazardous substances, is either secured by a rope grab to a lifeline or to a structure or is protected by a safety net prescribed in R 408.40635.

(2) An employer shall ensure that a lifeline, safety belt, and a lanyard is used only for employee safeguarding. An employer shall ensure that a lifeline, safety belt, or lanyard actually subjected to inservice loading is immediately removed from service and is not used again for employee safeguarding.

(3) An employer shall ensure that a lifeline is secured directly above the point of operation to an anchorage or structural member capable of supporting a minimum dead weight of 5,400 pounds.

(4) An employer shall ensure that a lifeline used on rock-scaling operations or used in an area where the lifeline may be subjected to cutting or abrasion is a minimum of 7/8-inch wire core manila rope or equivalent. For other applications, an employer shall ensure that a minimum of 3/4-inch manila rope, or equivalent, that has a minimum breaking strength of 5,400 pounds is used.

(5) An employer shall ensure that a safety belt lanyard is a minimum of 1/2-inch nylon rope, or equivalent, that has a maximum length which provides for a vertical drop of not more than 6 feet from the point that the rope is attached to the body.

**R 408.40632. Rescinded.**

**R 408.40633. Lineman's belt and safety strap; use.**

**Rule 633.** (1) A lineman's belt and safety strap shall be worn by an employee working on a pole, tower, or other such structure, except where use of the belt and strap creates a greater hazard. If use of the belt and strap creates a greater hazard, other equivalent safeguards that do not create a greater hazard shall be used.

(2) A lineman's belt and safety strap shall not be used in a manner that subjects them to a shock load, unless the belt and strap are in compliance with the requirements of the safety belt and lanyard as prescribed in Part 45. Fall Protection, being R 408.44501 et seq. of the Michigan Administrative Code.

(3) A lineman's belt and safety strap shall be inspected before use each day and shall be replaced or repaired if found to be defective.

**R 408.40634. Lineman's belt and safety strap; construction.**

**Rule 634.** A lineman's belt and safety strap shall meet all of the following criteria:

(a) Hardware for a lineman's belt, safety belt, and safety strap shall be drop-forged or pressed steel with a corrosion-resistant finish. The surface shall be smooth and free of sharp edges.

(b) The hardware shall be constructed to withstand the following tests:

(i) Buckles, 2,000-pound tensile test with a permanent deformation of not more than 1/64 inch.

(ii) D rings, 5,000-pound tensile test without cracking or breaking.

(iii) Snaphooks, 5,000-pound tensile test without distortion which would release the keeper. The keeper shall have a spring tension that does not allow the keeper to open with a weight of not less than 4 pounds when the weight is supported on the keeper against the end of the nose.

(c) The cushion part of a lineman's belt shall meet all of the following requirements:

(i) It shall contain no exposed rivets on the inside.

(ii) It shall be not less than 3 inches wide and not less than 5/32 inch thick.

(iii) It shall have pocket tabs that extend not less than 1 1/2 inches down and 3 inches back of the inside of the circle of each D ring for riveting on plier or tool pockets. On shifting D belts, the measurement for pocket tabs shall be taken when the D ring section is centered.

(d) A maximum of 4 tool loops shall be so located on the lineman's belt that 4 inches of the lineman's belt in the center of the back, measured from D ring to D ring, are free of tool loop and other attachments.

(e) Copper, steel, or equivalent liners shall be used around the bar of D rings to prevent wear between the D ring and the leather or fabric enclosing them.

(f) All stitching shall be not less than 42-pound weight nylon or equivalent thread and shall be lock-stitched. Stitching parallel to an edge shall be not less than 3/16 inch from the edge of the narrowest member caught by the thread.

#### **R 408.40635. Safety nets.**

**Rule 635.** (1) An employer shall ensure that a net extends 8 feet beyond the edge of the work surface where an employee is exposed and is installed as close under the work surface as practical, but not more than 25 feet below the work surface. An employer shall ensure that the net is hung with sufficient clearance to prevent an employee from coming in contact with the surface below.

(2) An employer shall ensure that the mesh size of a net is not more than 6 inches by 6 inches.

(3) An employer shall ensure that a net purchased after July 12, 1999 bears a label certifying an accepted performance of 17,500 foot-pounds minimum impact resistance for each panel. An employer shall ensure that the edge ropes provide a minimum breaking strength of 5,000 pounds.

(4) An employer shall ensure that forged steel safety hooks or shackles are used to fasten the net to its supports.

(5) An employer shall ensure that connections between net panels develop a safety net that has the full strength of each panel.

#### **R 408.40636. Working over or near water.**

**Rule 636.** (1) Where a possibility of drowning exists, an employee working over or adjacent to water shall wear a life jacket or buoyant work vest. The life jacket or buoyant vest shall bear a label, "U.S. Coast Guard approved." The jacket shall be of a type to roll the wearer face up, if unconscious.

(2) Before each use, the life jacket or buoyant vest shall be inspected for defects which might alter its strength or buoyancy. Defective units shall not be used.

(3) A ring buoy with not less than 90 feet of safety line shall be provided and shall be readily available for rescue operations. The distance between the buoys shall not be more than 200 feet.

(4) Not less than 1 lifesaving boat equipped with a method of propulsion that is effective for the water conditions shall be available at the location where an employee works over or adjacent to water and the possibility of drowning exists.

#### **R 408.40641. Rescinded.**



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